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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/812,868	03/31/2004	Teruyoshi Washizawa	00862.023527	4554

5514 7590 04/16/2007  
FITZPATRICK CELLA HARPER & SCINTO  
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NEW YORK, NY 10112

EXAMINER
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THORNEWELL, KIMBERLY A

ART UNIT	PAPER NUMBER
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2128

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/16/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

# Office Action Summary

Application No.

10/812,868

Applicant(s)

WASHIZAWA, TERUYOSHI

Examiner

Kimberly Thornevell

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 16 January 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. Claims 1-14 were originally presented for examination. In the Office Action dated 7/21/2006, all of claims 1-14 were rejected. In the reply dated 1/16/2007, Applicant amended claims 1, 4, 7, 10, 13 and 14. Therefore all of claims 1-14 are pending in the instant application.

### *Response to Arguments*

#### Claim Rejections, 35 USC 101

2. The Examiner respectfully notes Applicant's amendment to independent claims 1, 4, 7, 10, 13 and 14 in order to include a step of outputting the obtained solution. The Examiner further notes Applicant's amendments to claims 13 and 14 to read a program stored in a computer-readable medium. However, these amendments are not sufficient to overcome the rejections of the claims under 35 USC 101.

Firstly, the amendments to the claims recite outputting "the obtained solution." However, no solution has been obtained within the claim limitations. Moreover, the claims still fail to recite a tangible result.

#### **MPEP 2106 recites, in part:**

USPTO personnel shall review the claim to determine it produces a useful, tangible, and concrete result. In making this determination, the focus is not on whether the steps taken to achieve a particular result are useful, tangible, and concrete, but rather on whether the final result achieved by the claimed invention is "useful, tangible, and concrete."

#### **b) "TANGIBLE RESULT"**

The tangible requirement does not necessarily mean that a claim must either be tied to a particular machine or apparatus or must operate to change articles or materials to a different state or thing. However, the tangible requirement does require that the claim must recite more than a 35 U.S.C. 101 judicial exception,

in that the process claim must set forth a practical application of that judicial exception to produce a real-world result.

Although the independent claims recite a step of outputting the solution, the claims still fail to set forth a practical application to produce a real-world result. Claims 13 and 14 relate to programs stored in computer readable storage media that execute processes that correspond to claims 1 and 4, respectively. As the methods of claims 1 and 4 fail to produce a tangible result, the processes performed by the programs of claims 13 and 14 also fail to produce a tangible result; therefore, claims 13 and 14 are also non-statutory. Because claims 1-6, 13 and 14 do not produce a useful, concrete and tangible result, the claims are directed to non-statutory subject matter and therefore the rejection of the claims under 35 USC 101 is maintained.

*Claim Rejections, 35 USC 102(b) and 35 USC 103(a)*

3. Applicant's arguments, see Remarks page 17 last paragraph-page 18, filed 1/16/2007, with respect to claims 1-14 have been fully considered and are persuasive. The rejections of claims 1, 2, 7, 8 and 13 under 35 USC 102(b) and of claims 3-6, 9-12 and 14 under 35 USC 103(a) have been withdrawn.

***Claim Objections***

4. Claims 1, 4, 7, 10, 13 and 14 are objected to because the limitation "the second evaluation function corresponds a norm of a residual vector" should read, "the second evaluation function corresponds to a norm of a residual vector." Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

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5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1-14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Independent claims 1, 4, 7, 10, 13 and 14 recite the limitation of the design variable vector being a "rate of existence to a structural member in each element." What is a rate of existence? What is this existence of? Consequently, what does the design variable vector represent?

7. Claims 1-14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Independent claims 1, 4, 7, 10, 13, and 14 recite a limitation of outputting the obtained solution. However, the first solution process, which contains the limitation of outputting the obtained solution, does not contain a step of obtaining a solution. The specification does not sufficiently enable one of ordinary skill in the art to output an obtained solution when a solution has not previously been obtained.

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Claims rejected but not specifically discussed above are rejected by virtue of their dependence.

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 1-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Independent claims 1, 4, 7, 10, 13 and 14 recite that the status variable vector is a displacement in each node, and that the design variable vector is a rate of existence to a structural member in each element. Firstly, there is insufficient antecedent basis in the claims for the limitations "each node" and "each element."

Furthermore, the limitation "a rate of existence to a structural member" is unclear. What is a rate of existence? What is this an existence of to the structural member?

Because the terms "rate of existence" and "element" are unclear, the term design variable vector has not sufficiently defined and is also unclear. Similarly, because the term "node" is unclear, the term "status variable vector" is rendered unclear. Because the first solution process recited in the claims relies on updating the design variable vector and the status variable vector, the claim is rendered indefinite.

Claims rejected but not specifically discussed above are rejected by virtue of their dependence.

10. The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

***Claim Rejections - 35 USC § 101***

11. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

12. Claims 1-6, 13 and 14 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claims recite outputting "the obtained solution." However, no solution has been obtained within the claim limitations. Moreover, the claims still fail to recite a tangible result.

**MPEP 2106 recites, in part:**

USPTO personnel shall review the claim to determine it produces a useful, tangible, and concrete result. In making this determination, the focus is not on whether the steps taken to achieve a particular result are useful, tangible, and concrete, but rather on whether the final result achieved by the claimed invention is "useful, tangible, and concrete."

**b) "TANGIBLE RESULT"**

The tangible requirement does not necessarily mean that a claim must either be tied to a particular machine or apparatus or must operate to change articles or materials to a different state or thing. However, the tangible requirement does require that the claim must recite more than a 35 U.S.C. 101 judicial exception, in that the process claim **must set forth a practical application of that judicial exception to produce a real-world result.**

Although the independent claims recite a step of outputting the solution, the claims still fail to set forth a practical application to produce a real-world final result. Claims 13 and 14 relate to programs stored in computer readable storage media that execute processes that correspond to claims 1 and 4, respectively. As the methods of claims 1 and 4 fail to produce a tangible result, the processes performed by the programs of claims 13 and 14 also fail to produce a tangible result; therefore, claims 13 and 14 are also non-statutory. Because claims 1-6, 13 and 14 do not produce a useful, concrete and tangible final result, the claims are directed to non-statutory subject matter and therefore the rejection of the claims under 35 USC 101 is maintained.

Regarding apparatus claims 7-12, these claims are deemed statutory in light of the PGPub:

“[0036] According to the present invention, further provided is an apparatus performing the above mentioned methods and a program to be executed by the apparatus performing the above mentioned methods.”

Based on this paragraph it is inferred that the apparatus is hardware which is executing the program instructions. Therefore the “means for” limitations of the claims are drawn to hardware elements.

#### *Allowable Subject Matter*

13. Claims 1-14 would be allowable if rewritten or amended to overcome the objections and rejection(s) under 35 U.S.C. 101 and 35 U.S.C. 112, 1<sup>st</sup> and 2<sup>nd</sup> paragraph, set forth in this Office action.



14. The following is a statement of reasons for the indication of allowable subject matter:

Regarding independent claims 1, 4, 7, 10, 13, and 14:

The present invention contains limitations of: a design variable vector being a rate of existence to a structural member in each element; and a second evaluation function corresponding to a norm of a residual vector which is obtained as a difference between a nodal force vector and a status variable vector on which a global stiffness matrix is operated. The prior art does not disclose or suggest these features in combination with other elements as recited in the claims.

Claims 2-3, 5-6, 8-9, and 11-12 are deemed allowable based on their dependence from allowable claims.

#### *Conclusion*

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kimberly Thornewell whose telephone number is (571)272-6543. The examiner can normally be reached on 9am-5:30pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini Shah can be reached on (571)272-2279. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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